Preface

Materials science and processing technologies play a pivotal role in addressing technical challenges and fostering innovation across diverse industries. This special edition provides the results of multidisciplinary explorations on key topics in the area of materials that shape modern advancements in engineering.

Chapter 1: Sustainable Metallurgical Technologies delves into innovative methods and processes that promote environmentally friendly and efficient practices in metallurgy. By highlighting resource optimization and reduction of environmental impacts, this chapter contributes to sustainable industrial development.

Chapter 2: Waste Recycling emphasises the importance of circular economy principles by exploring effective recycling techniques for agricultural and industrial waste. The discussion offers insights into strategies to utilise waste for the protection of ecosystems.

Chapter 3: Materials for Food and Biomedical Applications includes articles that analyse the potential application of proteins derived from bamboo mushrooms for food production and medicinal goals and also the synthesis of magnetic nanoparticles coated with chitosan for biomedical applications.

The fourth chapter is dedicated to structural engineering and focuses on materials, technologies and analysis of strength properties of structural elements crucial to designing resilient and efficient infrastructural objects. This chapter highlights advancements that ensure the safety and durability of structural systems.

This edition contains the research results and examples of forward-thinking engineering approaches that will be useful to many specialists in materials science, machinery, chemical and biomedical engineering and construction.